

WHAT IS CLAIMED IS:

1. A method for forming high aspect ratio contact holes, comprising steps of:
providing a substrate;
5 forming a pad oxide layer on said substrate;
forming a pad nitride layer on said pad oxide layer;
forming an oxide layer on said pad nitride layer;
forming a mask of a predetermined pattern on said oxide layer; and
forming contact holes by plasma etching, the plasma etching using a plasma composition
10 comprising argon, oxygen, a first fluorocarbon and a second fluorocarbon, the
fluorine-to-carbon ratio of said second fluorocarbon being higher than that of the first
fluorocarbon.
2. The method as claimed in Claim 1, wherein said first fluorocarbon is C_5F_8 .
3. The method as claimed in Claim 2, wherein the fluorine-to-carbon ratio of said second
15 fluorocarbon is higher than 8:5.
4. The method as claimed in Claim 3, wherein said second fluorocarbon is C_3F_8 .
5. A method for forming high aspect ratio contact holes, said method using plasma etching
to open contact holes, and being characterized in that the plasma etching uses a plasma
composition comprising argon, oxygen, a first fluorocarbon and a second fluorocarbon,
20 the fluorine-to-carbon ratio of said second fluorocarbon being higher than that of the first
fluorocarbon.
6. The method as claimed in Claim 5, wherein said first fluorocarbon is C_5F_8 .
7. The method as claimed in Claim 6, wherein the fluorine-to-carbon ratio of said second
fluorocarbon is higher than 8:5.
- 25 8. The method as claimed in Claim 7, wherein said second fluorocarbon is C_3F_8 .
9. A plasma composition for forming high aspect ration contact holes, comprising argon,
oxygen, a first fluorocarbon and a second fluorocarbon, the fluorine-to-carbon ratio of
said second fluorocarbon being higher than that of the first fluorocarbon.
10. The composition as claimed in Claim 9, wherein said first fluorocarbon is C_5F_8 .

11. The composition as claimed in Claim 10, wherein the fluorine-to-carbon ratio of said second fluorocarbon is higher than 8:5.
12. The composition as claimed in Claim 11, wherein said second fluorocarbon is C_3F_8 .